THE EVALUATION OF THE FLUCTUATION OF EDUCATIONAL ENVIRONMENT OF LATVIAN RURAL SCHOOLS

Anna Laizāne
Irēna Katane
Latvia University of Agriculture,
Institute of Education and Home Economics, Latvia

Abstract
Nowadays rural schools function under the conditions of constantly changeable environment, where the process of self-development is observed. Due to the influence of economical, demographical and social crises the problem of the sustainability of a rural school as the educational environment has become urgent. The sustainability of rural community and its cultural environment also considerably depends on the sustainability of a rural school. The educational environment of rural schools has been studied by the authors of this article for many years, providing the multi-dimensional point of view: 1) rural school as a viable, self-developing, self-organizing and self-assessing system of educational environment; 2) rural school as an open humanistically target oriented lifelong environment for sustainable development of community; 3) rural school as a learning organization to change and develop. The article provides the description of the expertise of educational environment of rural schools, as a result of which there were analyzed and evaluated the changes that had taken place in this environment within the period of time of three years (2008/2009–2010/2011). The research results enable to draw a conclusion that very important changes have taken place in the educational environment of research base schools: to ensure the sustainable development, the rural schools transform into the educational multi-functional and multi-structural centres of community.
KEYWORDS: ecological approach in the educational research; fluctuation of educational environment; education of community in a rural school; viability of a rural school.

Introduction

Since the end of the 20th century and the beginning of the 21st century Latvian rural schools function under the conditions of constantly changing environment, where the process of self-development is observed. Nowadays, due to the influence of economical, demographical and social crises the problem of the sustainability of a rural school as the educational environment has become urgent.

There exists the diversity of interaction between the educational environment of a rural school and the surrounding environment: 1) a school itself tries to influence the ongoing processes that take place in the surrounding environment; 2) the educational environment of a rural school develops basically under the influence of surrounding environment; 3) there exists mutual interaction between the educational environment of a rural school and its surrounding environment.

Nowadays a rural school as a self-developing environmental system faces a choice: either to change and exist, ensuring its viability nowadays and sustainability in the future perspective, or not to change at all, waiting for better times to come and instructions "from above", thus endangering its existence and exposing itself to the risk of liquidation.

There exist different educational needs of the society of local scale in different rural regions that, in their turn, depend on different factors: economical situation and population's employment, demographical situation, the number of rural inhabitants, structure and age peculiarities, already obtained education, values orientation, attitude, desire of self-realization, as well as aims and possibilities of professional development, etc.

A rural school has to find the most appropriate developmental perspective for its internal resources under the conditions of surrounding environment, to develop a suitable model of educational environment for the specifity of the cultural environment of rural community and that of the rural school, respecting the interests and needs of all inhabitants of rural community.

Since the year 2000 the studies performed at the Institute of Education and Home Economics of the Latvia University of Agriculture (Katane, 2005; Katane, 2006; Katane, 2007) show that the most of the rural schools, in order to ensure their sustainability, already at the beginning of the 21st century became the self-developing systems of educational environment that were ready for changes. In many places, a rural school as an open educational environment began to offer community education thus becoming structurally self-complicated, broadening its spectrum of functions and increasing its audience.

According to our point of view, it is important to research the fluctuation of the educational environment of rural schools nowadays, in order by summarizing and publishing the innovative work experience of rural schools to develop cooperation networks by means of cross-school mentoring, to

encourage other rural schools (especially those that are not so successful in their activities and really exposed to the risk of liquidation) to look for their developmental perspectives creatively, to work out and carry out untraditional, even very innovative models of educational environment that would ensure the viability of these schools and rural community under the conditions of crises nowadays and their sustainable development in future.

The aim of the article is to publish our empirical research, namely, the results of internal expertise of the educational environment of rural schools.

We based our research on *the ecological approach in education*. It is possible to identify several directions in the philosophically methodological substantiation of our experimental research, grounded on three views on a rural school:

- *rural school as a viable, self-developing, self-organizing and self-assessing system of educational environment;*
- *rural school as an open humanistically target oriented lifelong environment for sustainable development of community;*
- *rural school as a learning organization to change and develop.*

These three views on rural school are based on: 1) our personal experience and observation; 2) the results of our theoretical research (Katane, 2007; Katane & Laizane, 2009; Katane & Laizane, 2010; Katane & Laizane, 2011); 3) the results of previously carried out studies (Katane, 2005; Katane, 2006).

Our empirical research, the results of which we would like to present in this article, consisted of several stages.

- Preparatory stage: 1) the development of the methodology for the evaluation of the educational environment of rural schools, including the development of the system of evaluation indicators (in total 54 indicators (the indications of the educational environment of a rural school); 2) the creation of the sample of research base schools (50 rural schools were addressed, 31 rural schools agreed to take part in the research); 3) the choice of experts at each school (the requirements for the experts were: at least 5 years of work experience in the school under research; the participation in the team of school administration; pedagogical competence, including methodological and research competence).
- The internal expertise of rural schools.
- The aggregation and processing of data, the analysis and evaluation of results.
- The presentation of the results and conclusions to the representatives of the experiment base schools and to others.

The aim of research*:* the evaluation of the fluctuation of the educational environment of rural schools, viewed from different aspects within the period of time: the study-years 2008/2009 – 2010/2011, by experimentally approbating the developed methodology for the evaluation of the educational environment of rural schools.

The research questions*:* 1) are there any changes in the educational environment of rural schools nowadays under the conditions of economical and demographical crises?; 2) how do rural schools as self-developing and self-organizing systems of educational environment try to ensure their viability nowadays and sustainability in the future perspective?

The research methods*:* 1) the internal expertise of the educational environment of rural schools (methods of data obtaining); experts by evaluating each indication of the educational environment of a rural school as an indicator used the dichotomous scale, namely, if an indication could be referred to the school under research and an expert could answer "yes", 1 point was given, if the answer was "no", then the expert, according to the particular indicator, indicated 0 points in the experts' worksheet; the educational environment of rural schools was evaluated both in the study-years 2008/2009 and 2010/2011; 2) Binomial Test was used to define the coefficient of proportion; Sign Test and MacNemar's Test were used to define the differences and to evaluate the fluctuation of the educational environment of rural schools (methods of data processing by means of SPSS 17.0).

The description of research base schools*.* The base schools of the experiment (in total 6 secondary schools and 25 elementary schools) represented all 4 culturally historical regions of Latvia: Kurzeme was represented by 5 elementary schools; Latgale – by 2 secondary schools and 6 elementary schools; Vidzeme – by 1 secondary school and 10 elementary schools; Zemgale – by 3 secondary schools and 4 elementary schools.

When analyzing and evaluating the obtained information about the research base schools, we were interested also in such a parameter as the year of establishment that shows the cultural history of the

school, including pedagogical culture, traditions, and their historical roots. The results show that Svete Basic School was the oldest (founded in 1836) among the schools-participants of research, but the newest – Jaunanna Basic School (founded in 2000). Having determined the proportion of rural schools, depending on the period of time of establishment, we obtained the following results:

- In the 1st half of the 19th century there had been established 6.5% out of all research base schools;
- In the 2nd half of the 19th century there had been established 26% out of all research base schools;
- In the 1st half of the 20th century there had been established 38% out of all research base schools;
- In the 2nd half of the 20th century there had been established 26% out of all research base schools;
- At the beginning of the 21st century there had been established 3.5% out of all research base schools.

The number of pupils of schools was an important indicator for the selection of rural schools for our research purposes. The following proportion indicators of research base schools were obtained depending on the number of pupils at each school:

- ... < 50 pupils : 10 % of rural schools;
- 50 pupils < ... < 100 pupils: 58% of rural schools;
- 100 pupils < ... < 150 pupils: 12.5 % of rural schools;
- 150 pupils < ... < 200 pupils: 7 % of rural schools;
- 200 pupils < ... : 12.5 % of rural schools.

It means that 68% of research base schools are the rural schools with less than 100 pupils. Consequently, these rural schools have a real reason to worry about their viability nowadays under the conditions of economical and demographical crises and about their sustainability in the future perspective.

Results of the research

At the beginning *the primary mathematical processing* was carried out using Binominal test with the aim to define the coefficient of proportion of indications of educational environment of rural schools (2008/2009-2010/2011). Comparing the coefficient of proportion of every indication of 2008/2009 school year with every indication of the coefficient of proportion of 2010/2011 school year, positive and negative differences were gained.

All indicators were divided into four main groups after primary processing of data and analysis of results (see Table 1 and Table 2):

- Positive difference indicator group (39 indicators) that points out that the coefficient of proportion has increased in 2010/2011 school year in comparison with 2008/2009 school year;
- Negative difference indicator group (5 indicators) that points out that the coefficient of proportion has decreased in 2010/2011 school year in comparison with 2008/2009 school year;
- An indicator group (6 indicators) that points out that there are no changes in the coefficient of indications of indicators of 2010/2011 in comparison with 2008/2009 school year;
- An indicator group (4 indicators) that points out indications that are not found out in the educational environment of rural schools both in 2010/2011 school year and 2008/2009 school year.

Table 1. **Groups of Indicators**

Main groups of indicators	Serial number of indicators in the worksheet of experts
Positive differences	1-4, 8-14, 16-18, 20-31, 33, 34, 36-41, 43-45, 47, 48
Negative differences	6, 42, 50, 52, 54
Without changes	5, 7, 15, 19, 32, 35
Indications not stated	46, 49, 51, 53

Evaluated indicator groups of educational environment of rural schools according to figures of difference and p-value are shown in Table 2.

Table 2. **Indicator Groups of Educational Environment of a Rural School**

1. Indicators of rural school evaluated in regard to 2008 year and 2011 year	2. Binominal test coefficient of proportion (2008/2009)	3. Binominal test coefficient of proportion (2010/2011)	4. Difference
POSITIVE DIFFERENCES			
1. It is characteristic for educational environment of rural schools to have small sets of forms that consist of 8-18 or more students.	0,87	0,94	+ 0, 07
2. There are integrated forms due to an untoward demographical situation in the country.	0,42	0,58	+ 0, 16
3. It is characteristic for educational environment of rural schools to have individual differential approach for each pupil that provides every child comprehensive development, int.al. a cognitive development in his/her suitable form and pace.	0,97	1,00	+ 0, 03
4. Rural schools' teachers pay plenty of attention to those pupils who have difficulties in the learning process, by working differentially during lessons and additionally – outside formal learning time.	0,97	1,00	+ 0, 03
7. Minority children are integrated in the process of learning in rural schools.	0,97	1,00	+ 0,03
8. Rural teachers obtain other specialities and qualifications in further education courses and study programs that officially give them the right to teach more than one subject, that is why it is easier for schools to solve sustainability problems.	0,94	0,97	+ 0,03
9. The majority of rural schools' teachers teach more than one school subject.	0,65	0,71	+ 0,06
10. Rural school has an open environment for all local community.	0,94	0,97	+ 0,03
11. All rural school's ongoing procedures are allocated publicity to ensure prestige in the society (for example, homepages, school's newspaper, video etc.).	0,81	0,94	+ 0,13
12. Provide integration of all pupils who leave in the municipality (there does not exist "problem of street children", that is more characteristic to urban environment).	0,97	1,00	+ 0,03
13. Children with special needs are integrated in the learning environment in a rural school.	0,58	0,61	+ 0,03
14. Preschool children are integrated in the learning process thus opening preschool groups in a rural school.	0,74	0,77	+ 0,03
16. Rural school integrates agricultural educational content and education work. (For example, there is wildlife's corner, there are agricultural hobby groups, etc.)	0,65	0,68	+ 0,03
17. Pedagogically psychological environment is provided for the work of pupils and teachers, development and socialization.	0,94	0,97	+ 0,03
18. Rural school successfully integrates and realizes environmental education. (For instance, hobby clubs and this content is integrated in the events of the school.)	0,81	0,90	+ 0,09
20. Rural school provides qualitative learning as a result it is reflected in marks.	0,94	1,00	+ 0,06
21. Rural school provides the possibility to learn in prolonged day group so that pupils do the home-task in the presence of the teacher, also rest as well as providing qualitative meal and friendly pedagogically psychological environment.	0,90	0,93	+ 0,03
22. The administration of a rural school organizes seminars for teachers on the place.	0,52	0,71	+ 0,09

Continuation of Table 2

1	2	3	4.
POSITIVE DIFFERENCES			
23. Non-formal family education is offered and organized by a rural school (pedagogical, psychological, health education, acquisition of computer software, foreign languages etc.)	0,58	0,68	+ 0,10
24. Rural school works out more than one licensed and acrediated educational programmes. (For instance, preschool, pedagogical correction, general education's programmes).	0,61	0,74	+ 0,13
25. Rural school carries out the function of social family rehabilitation in the conditions of deprivation.	0,61	0,71	+ 0,10
26. Thanks to the improvement of materially technical base, the libraries of rural schools have become informative centers for the whole community (informative environment), where new information communication technologies (ICT) are offered and pupils are supplied with necessary course books.	0,97	1,00	+ 0,03
27. Rural school offers local society an opportunity to engage in non-formal education (different hobby groups).	0,55	0,58	+ 0,03
28. Rural school as self-assessing, self-developing organization tries to provide its own sustainability, analysing and evaluating educational situation in the country, region and district, municipality, being aware of its own strength and weakness as well as developing possibilities and from its situation consequential threats as well as the history of development.	0,55	0,90	+ 0,35
29. Rural school thinking about its sustainability and competitiveness, work out a model of educational environment characteristic only to it, defining developing directions and priorities in such way looking for the „niche" in the environment of the municipality, district and all state.	0,23	0,37	+ 0,14
30. Rural school organizes cultural, educational and sport events not only for schoolchildren, their parents, but for all inhabitants of the community.	0,77	0,80	+ 0,03
31. Rural school cooperates with other schools of the district and urban schools.	0,90	0,97	+ 0, 07
33. Rural school has international cooperation partners because it takes part in different international projects such way providing experience exchange of staff and schoolchildren as well as attracting co-financing.	0,39	0,55	+ 0,16
34. Rural school works out programs of sustainable development and concepts.	0,74	0,81	+ 0, 07
36. Rural school has changed its status, reorganization of the school has taken place.	0,03	0,13	+ 0,10
37. Rural school changes into multi-functional center.	0,29	0,61	+ 0,32
38. Adults' centers are formed in the educational environment of a rural school in cooperation with different providers of formal and non-formal adult education; methodologically consultative rooms etc., substructures that give an opportunity for local inhabitants offer both formal and non-formal adult education in realization of which involving teachers and specialists – guest lecturers.	0,16	0,50	+ 0,34
39. Rural school is multi-structural educational environment.	0,87	1,00	+ 0,13
40. State/nongovernmental organization's branch office is opened in a rural school.	0,35	0,42	+ 0,07
41. Rural school is a part of multi-structural educational environment of rural district.	0,87	1,00	+ 0,13
43. Different kind of centers are formed in a rural school, for example, health, sport, methodogical etc.	0,19	0,26	+ 0,07
44. Rural school has got an interest related centre.	0,32	0,42	+0,10

Continuation of Table 2

1	2	3	4.
POSITIVE DIFFERENCES			
45. It is characteristic for rural school the organization of mazpulki (in Latvian) nowadays.	0,47	1,00	+0,53
48. Rural school works out and license professional educational programmes as a result a rural school opens workshops.	0,65	0,71	+ 0,06
NEGATIVE DIFFERENCES			
6. Pupils from concrete local municipality study in a rural school as well as from other municipalities because pupils' parents and children have chosen the environment of this school as the most suitable for development of a child.	0,94	0,87	- 0,07
42. Rural school is awarded recognition status (for instance, Eco school).	0,84	0,81	- 0,03
50. In order to stop forms' integration in one set of form, rural school in cooperation with local and district's municipality searches and finds additional finances and/or co-financing that is necessary for forms' set self-payment cover where are not enough pupils according to formal requirements and regulations.	1,00	0,28	-0,72
52. Rural school takes care that pupils have possibilities to eat not only dinner, but also breakfast and lunch and even supper at school.	0,30	0,03	- 0,27
54. In cooperation with the medical staff of municipality, the rural school organizes medical checkup for schoolchildren once a year.	0,72	0,28	-0,44
WITHOUT CHANGES			
5. Rural schools' pupils succeed not only in a school's daily learning process, but take part in various events of district and state – olympiads, expositions competitions, contests and etc.	0,97	0,97	0
15. Individual programs are worked out in order to integrate youth, who exceeded the age of schoolchildren of the primary school and who could not obtain compulsory education due to some reasons (second chance education).	0,81	0,81	0
19. The environment of rural school provides the development of talented children according to their interests, needs, abilities and possibilities.	0,94	0,94	0
32. Rural school improves the material technical base that provides an informative development of schools environment.	0,90	0,90	0
35. Rural school develops and arranges its physical environment (rooms, premises), for example, renovation, modernization of rooms etc.	0,87	0,87	0
INDICATIONS THAT WERE NOT FOUND AT ALL			
46. It is characteristic for a rural school to have a beautiful, spruce, ecologically clean natural environment.	0,00	0,00	0
47. Rural school provides conditions and an opportunity to integrate minority pupils.	0,00	0,00	0
49. Rural school in cooperation with a local municipality and/or a town's bus park solves transport questions that pupils are delivered to school and back home.	0,00	0,00	0
51. Rural school takes care about children qualitative catering, providing ecological clean products, using delicious, warm meal in preparing dinner.	0,00	0,00	0
53. A democratic educational environment of rural school provides pupils' self-determination, i.e. pupils active activity in self-government.	0,00	0,00	0

After the primary processing, analysis of results and evaluation it was learnt that 44 indicators out of 54 testify that there occurred changes in the period of time of 3 school years. ***That means that there are statistically more indications that indicate on the fluctuation of educational environment of rural schools than indications that did not take place (6 indicators) or that were not found out at all (4 indicators).***

- **THE ANALYSIS OF THE FIRST MAIN GROUP.**

The results of primary data processing that refer to the first main group of indicator, show that there is a characteristic fluctuation with an increasing tendency of educational environment of rural schools because the coefficient proportion has increased in the time of three school years. The authors have formed six indicator subgroups that show ongoing changes in the educational environment of rural schools with this positive difference. Some indicators from the first main group were included into some subgroups of indicators because they characterize educational environment of rural schools from different aspects and draw attention to some ongoing processes in the educational environment of rural schools.

1. ***Subgroup of rural school as a viable, self-organizing, self-developing and self-assessing system of educational environment.***

The number of schools increases that can be called self-organizing, self-developing and self-assessing systems of educational environment that try to provide their viability on balance with changeable outer environment and its sustainability in the future perspective. For instance,

- All rural school's ongoing procedures are allocated publicity to ensure prestige in the society;
- Tries to provide its own sustainability, analysing and evaluating educational situation in the country, region and district, municipality, being aware of its own strength and weakness as well as developing possibilities and from its situation consequential threats as well as the history of development;
- In cooperation with other rural and urban schools organizes different experience exchange seminars, cultural educational events for pupils and teachers of cooperation schools;
- Sustainable development programs and conceptions are worked out.

What is more the number of such schools has a little bit increased in 2010/2011 school year.

The number of schools has increased in 2010/2011 school year that some indications were not characteristic to, namely:

- Rural school thinks about its sustainability, determines its development directions and priorities, thus looking for its „niche" in the environment of municipality, region and whole state, works out only characteristic model of educational environment for itself, int.al., points out priorities in up-bringing and learning work.
- Has international cooperation partners because it takes part in different international projects such way providing experience exchange of staff and schoolchildren as well as attracts co-financing.

2. ***Subgroup of rural school as a learning organization.***

Some changes in the educational environment of rural schools delight because they stress out the fact that more and more rural schools provide their viability in the hard demographical and economical conditions as well as sustainability in the future perspective, become learning organizations. The following indicators prove that:

- Rural teachers obtain other specialities and qualifications in further education courses and study programs, that officially give them the right to teach more than one subject, that is why it is easier for schools to solve sustainability problems;
- Rural schools themselves organize further education seminars for teachers;
- Rural schools learn from their and other schools' experience, observing their environment;
- Rural schools cooperate with other rural and urban schools, organizing cross-school mentoring exchange seminars for pedagogues;
- Rural schools take part in different international projects to learn something from experience of abroad schools and share their own experience.

3. ***Subgroup rural school as an educational environment of multi-functional community.***

The biggest subgroup of the first main group of indicators is formed by 10 indicators and that prove that rural schools change into multi-functional systems of educational environment or multi-functional centers in the countryside. Such indications characterize rural school as an environment of multi-functional community that was already observed in 2008/2009 school year:

- rural school is opened for the whole local community;

- rural school carries out functions of preschool educational establishment;
- rural school carries out functions of day center taking care of pupils after lessons (homeworks, different activities and rest);

- Thanks to the improvement of materially technical base, the libraries of rural schools have become informative centers for the whole community (informative environment), where new information communication technologies (ICT) are offered and pupils are supplied with necessary course books;
- Rural school organizes cultural, educational and sport events not only for pupils, teachers, pupils' parents and their family members, but also for all inhabitants of the community.

The number of rural schools increases that undertake such functions that was not characteristic to them in 2008/2009 school year:

- Rural school organizes and offers non-formal family education;
- Rural school carries out the function of social family rehabilitation in the conditions of deprivation;
- Rural school offers local society opportunities to take part in the non-formal education (school's art club or interest related clubs etc.);
- Rural school undertakes adult's education functions.

The expertise showed that in the result of extra functions of 2010/2011 school year the number of schools has increased that consider itself multi-functional centers in the countryside.

4. *Subgroup of structure of rural schools educational environment.*

Obtained results in the way of inner expertise enable to draw conclusion that rural schools gradually change into multi-functional centers that are opened to the whole community as well as reorganization that was carried out on the level of municipality has brought in some changes in the educational structure of rural schools.The analysis of results of the primary processing show that the number of schools increased that:

- Are characterized small sets of forms and multi-graded forms;
- Have preschool groups as substructures of environment;
- Educational environment has changed due to reorganization and change of school status;
- Formal and non-formal substructures of adult's education are formed with an offer of adult's education in the structure of educational environment of rural schools in which environment work some substructures of state or nongovernmental organizations;
- Have become substructure of educational environment of district in the result of territory administrative reform and schools' reorganization;
- Different type of substructures as centers function (health, sport, career consulting, educational etc. types of centers).

Practically all schools from the research base recognised themselves as multi-structural educational environment in 2010/2011 school year (in comparison with 2008/2009 school year that make 87% of schools only).

5. *Subgroup of rural school of audience and educational offer.*

Rural schools turning into multi-functional educational environment has increased their audience in the life-long context, namely, the number of rural schools increased that:

- Provide integration of all pupils who leave in the municipality, namely, research base schools provide, that all age schoolchildren learn in the rural municipality, teenagers and youngsters (there does not exist "problem of street children", that is more characteristic to urban environment);
- Have found an opportunity to integrate in their environment children with special needs, thus making their educational environment friendly, supportive, developing and suitable;
- Offer formal and non-formal education not only to school age children, teenagers and youngsters according to the school type (primary school or secondary school), but also integrate in their environment preschool age children as well as adults thus widening the age spectre of audience.
- Integrate minority children in the process of learning in a rural school;
- Work out more than one licensed and accredited educational program;
- Offer education to the whole community, int.al. family education, adult's education, teachers' education.

Above said prove that the accessibility of educational environment to the whole community.

To provide prestige of school in the community as well as to find action "niche" in the educational environment of district, region or state, rural schools more and more take care of educational offer, namely, the number of rural schools from 2008/2009 to 2010/2011 has increased, that alongside with

general education specialize in some concrete content of educational direction, int.al. offer professional education, for instance: integrates and realizes environmental education; the organization of mazpulki (in Latvian) is characteristic; integrates agricultural educational content and education work; works out and licences professional formal and non-formal educational content programs in the result of which schools open different workshops that are accessible for all rural community.

6. Subgroup of rural school as a humanistic, target oriented pedagogical environment.

High indicators of the coefficient of proportion were obtained both in 2008/2009 and 2010/2011 school years that have increased in the time of 3 school years. That means that a humanistic, target oriented pedagogical environment is already characteristic in the long period of time, because:

- The individual differentiated approach to every pupil is characterized to the learning environment of the rural school that facilitates the development of the individual in the appropriate time and pace;
- The teachers of rural schools pay attention to the children who have got difficulties in learning, working differentially with these children (during the lessons or extra – after the formal time of school time);
- Rural school's environment provides the development of gifted children according to their interests, needs, abilities;
- Rural school provides qualitative studies that reflect pupils' progress;
- Rural school provides the possibility to learn in prolonged day group so that pupils do the home-task in the presence of the teacher.

- **THE ANALYSIS OF THE SECOND MAIN GROUP OF INDICATORS.**

The results of the expertise show that there is a less number of rural schools in 2010/2011 school year in comparison with 2008/2009 school year:

- Where study pupils from concrete local municipality as well as from other municipalities because pupils' parents and children have chosen the environment of this school as the most suitable for development of a child;
- Takes care that pupils have possibilities to eat not only dinner, but also breakfast and lunch and even supper at school.
- In cooperation with the medical staff of municipality, the rural school organizes medical check-up for schoolchildren once a year.
- Is awarded recognition status (for instance, Eco school);
- In order to stop forms' integration in one set of form, rural school in cooperation with local and district's municipality searches and finds additional finances and/or co-financing that is necessary for forms' set self-payment cover where are not enough pupils according to formal requirements and regulations.

These results prove that:

- There exists a competition in the attraction of pupils to its educational environment that is why the number of pupils who learn of some other municipalities has decreased, the reasons for that can be territorially administrative reform, schools' reorganization in the frame of municipalities;
- Proceeds of some municipalities have decreased in the time of three years to maintain small sets of forms not uniting them, to provide breakfast and dinner to children who are brought up in a low income family, to organize medical checkups;
- It is possible that some schools are deprived in this hard economical conditions when really exist threats for closure, that is why schools deliberatively refuse from social functions to save an opportunity to finance basic functions of their activities;
- The biggest part from the research base schools had already been awarded an international recognition status (84%) in 2008/2009 school year, the number of such schools inessentially decreased in 2010/2011 school year, probably in connection with that this status does not provide school's sustainability nowadays in the economical crisis conditions or the school works in the frame of some international project, a process of which has already finished.

The indicators of the second main group also indicate that there are ongoing changes in the educational environment of rural schools in the period of time of 2008/2009 - 2010/2011 school years.

• **THE ANALYSIS OF THE THIRD MAIN INDICATOR GROUP.**

After the primary processing of data it was found out that are some indications that are and were characteristic to the educational environment of rural schools. That is proved by the high results of the coefficient of proportion of the period of time of three years has stayed without any changes. The indications are the following:

- Individual programs are worked out in order to integrate youth, who exceeded the age of schoolchildren of the primary school and who could not obtain compulsory education due to some reasons.
- It is characteristic for a rural school to organize learning outside premises in natural environment (excursions, learning that is connected with observation and research organized outside school's premises etc.);
- The environment of rural school provides the development of talented children according to their interests, needs, abilities and possibilities.
- Rural schools' pupils succeed not only in a school's daily learning process, but take part in various events of district and state – olympiads, expositions competitions, contests and etc.
- Rural school improves the material technical base that provides an informative development of schools environment.
- Rural school develops and arranges its physical environment (rooms, premises), for example, renovation, modernization of rooms etc.

• **THE ANALYSIS OF THE FOURTH MAIN INDICATOR GROUP.**

In the way of inner expertise it was found out that many indications that were characteristic to the educational environment of 2000 till 2005 school years were not observed in the educational environment of rural schools in 2008/2009-2010/2011 school years. The indications are:

- It is characteristic for a rural school to have a beautiful, spruce, ecologically clean natural environment.
- Rural school in cooperation with a local municipality and/or a town's bus park solves transport questions that pupils are delivered to school and back home.
- Rural school takes care about children qualitative catering, providing ecological clean products, using delicious, warm meal in preparing dinner.
- A democratic educational environment of rural school provides pupils' self-determination, i.e. pupils active activity in self-government.

Also these research results show that fluctuation of educational environment exists in the longer period of time. But there should be marked that such fluctuation of educational environment of rural schools should be further researched in order to find the reasons of nonbeing of such indications.

Having performed the primary data processing, as well as having analyzed and evaluated the obtained results, we could draw a conclusion that ***the changes in the educational environment of Latvian rural schools take place in many directions***.

The second stage of processing of data of experiment

After the primary mathematical processing of data and detailed analysis of results and evaluation, the secondary processing of data was done. It was important to state fluctuation in the educational environment of rural schools but also to clarify how important these changes are for the experiment base schools that have taken place in the educational environment in the time of three years. The *Sign* test and *MacNemar* test were used for data processing.

As 4 indicators out of 54 indicators were not found out then these data was not used in the secondary processing. As a result 50 sampled population's pairs of indicators (2008/2009 and 2010/2011 indicators of sampled population) were used.

The hypotheses were advanced.

$\mathbf{H_0}$: there exists an unanimity between sampled population of expert of concrete indications of educational environment of a rural school of 2008/2009 and 2010/2011.

$\mathbf{H_1}$: there does not exist an unanimity between sampled population of expert of concrete indications of educational environment of a rural school of 2008/2009 and 2010/2011.

P-value (Asymp.Sig and Exact.Sig.) was found out with the help of the *Sign* test and *MacNemar* test. P-value was evaluated with revelance level α=0,05. If p-value > α=0,05, H_0 cannot be rejected. It was

concluded, that there are no differences between given sampled population of experts of 2008/2009 and 2010/2011. Between two connected sampled populations exists an unanimity or correlation. According to the special tables the degree of unanimity and correlation was found out, namely, *full* or *excellent* unanimity and *good* unanimity (see Table 2).

In our research in the analysis of conclusive statistics and evaluation a *moderate unanimity* was used as the boarder division between correlation and features of difference, when changes were found out in the educational environment of rural schools in the primary processing of data, but conclusive statistics proved, that these changes are not substantial.

If p-value is = α=0,05 or slightly higher then it is concluded that there exists a weak unanimity and differences are marked between indications of sampled population of experts. But if p-value is < α=0,05, H_0 is rejected and H_1 is accepted. That means that there exist substantial differences between concrete indication of concrete level of educational environment of rural schools of 2008/2009 and the sampled population of experts of 2010/2011.

In the process of work it was agreed that obtained results of conclusive statistics beginning with conclusion *moderate unanimity,* mark differences till relevant differences, point out ongoing less substantial and substantial changes in the educational environment of rural schools.

After such way of summarization of results of the last stage of research there was carried out the mathematical processing checking an assumption: indications in the educational environment of rural schools are divided into two groups: 1) indications that in the time of three school years stayed unchanged, and 2) indications that changed.

To get a division of indications into groups, it was agreed that the indications with unsubstantial changes are added to indications that prove that educational environment of rural schools is changeable.

That is why such sampled populations of indications were gained: 1) constant indications (in total 24 indications); 2) indications that change. The indications, whose coefficient of proportion has decreased, was joined as well as indications, whose coefficient of proportion has increased and indications of unsubstantial and substantial changes (in total 26).

The processing of data was carried out, checking the concordance of indications selection with a defining test χ^2 criteria in SPSS software. The hypotheses were advanced:

H_0: $n_i = ń_i$ constant number of indications is equal with the number of indications of educational environment of rural schools that are changeable.

H_1: $n_i \neq ń_i$ $ń_i$ constant number of indications is not equal with the number of indications of educational environment of rural schools that are changeable (see Table 4 and Table 5).

Such results were gained forming a data table in SPSS software and mathematically processed them.

Table 3. **Results of Indications**

Constant and changeable indications	**Serial number of indications in the worksheet of experts and number**	**Conclusions of results of secondary processing of data**
Constant or unchangeable indications	3, 4, 5, 7, 8, 10, 12, 13, 14, 15, 16, 17, 19, 21, 26, 27, 30, 32, 35, 42, 47.	Exists *excellent* unanimity between linked indications of sampled population.
	1, 6, 23.	Exists *good* unanimity between linked indications of sampled population.
Total:	**24 indications**	
Indications in unsubstantial change	9, 18, 20, 25, 31, 34, 36, 40, 43, 44, 48.	Exists *moderate* unanimity between linked indications of sampled population.
Total:	**11 indications**	
Indications in statistically substantial change	2, 11, 22, 24, 29, 33, 39, 41.	*There are marked changes between* linked indications of sampled population.
	28, 37, 28, 45, 50, 52, 54.	Exist very substantial changes between linked indications of sampled population.
Total:	**15 indications**	

Table 4. **Results of Indications**

	Observed indications N	Predictable division N	Difference
Constant indications	24	25	1.0
Indications that change	26	25	-1,0

Table 5. **Table of Obtained Results**

	Values
χ^2 criteria (Chi – Square)	0.080
freedom degree (df)	1
p – value (Asymp.Sig.)	0.777

From critical value table was read that with the materiality level α=0,05 and freedom degree df=1 hī square criteria's critical value is: $\chi^2 = 0{,}080 < \chi^2_{0,05;1} = 3{,}84$; but $p = 0{,}777 > \alpha = 0{,}05$.

It is concluded that with probability 95% it H_0 cannot be rejected. That means that the number of indications that prove about the constancy is statistically equal with the number of those indications that show the fluctuation of rural educational environment. These indications part regularly. That indicates that bifurcation or furcation processes take place in the educational environment of rural schools: 1) the specifity of educational environment of rural schools is saved; 2) innovative search and process of changes take place in the educational environment of rural schools. Having performed the secondary data processing and the analysis and evaluation of obtained results, we drew a conclusion that there exist significant differences between the evaluation given by experts in the study-years 2010/2011 and 2008/2009, which shows that ***very significant changes have occurred in the educational environment of research base rural schools within three years***.

Conclusions

The process of changes has been defined in the educational environment of rural schools in the time of three school years (2008/2009 – 2010/2011), meaning that rural educational environment is under changes. Both qualitative, quantitative, statistically substantial and very substantial changes take place that are proved by 26 indicators of expertise. At the same time rural school saves typical indications that historically are characteristic exactly to the rural educational environment, existing in the long period of time, that are proved by 24 indicators. That shows that bifurcation or furcation processes take place in the educational environment of rural schools in Latvia: the specifity of educational environment of rural schools is saved; 2) innovative search and process of changes take place in the educational environment of rural schools. Rural schools under conditions of social, int.al. demographical and economical crises when real threats of existence are felt for provision of their viability nowadays and sustainability in the future perspective, become: *a viable, self-developing, self-organizing and self-assessing system of educational environment; multi-functional and multi-structural environment of educational and cultural community; as a learning organization: exchange experience, namely, learn from their own and other schools' experience in Latvia and abroad, that find out, analyse and evaluate both inner and outer environment; learn not only students but also teachers.* There is an increase of the number of rural schools: 1) that become the self-developing and self-evaluating systems of educational environment trying to ensure their viability under the present conditions and their sustainability in the future perspective; 2) that, in order they could change and self-develop, learn, while interacting with the surrounding environment, try to obtain new information, analyze and evaluate their own experience and that of other schools, the opportunities offered by the surrounding environment and the threats to their existence; 3) that have changes in the structure of educational environment, as well as that themselves are also the substructures of a more complicated structure of rural educational environment; 4) that transform into the multi-functional educational centres of community; 5) that increase their audience; 6) that broaden their supply of educational programs; 7) that function on the basis of the humanistic approach in education, including pedagogical activities, ensuring pupils with friendly and development facilitating educational environment.

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DIE BEWERTUNG DER FLUKTUATION DES PÄDAGOGISCHEN UMFELD DER LETTISCHEN LÄNDLICHEN SCHULEN

Anna Laizāne, Irēna Katane

Z u s a m m e n f a s s u n g

Heutzutage arbeiten die Landschulen in Lettland in ununterbrochen ändernder Situation, wo ein Eigenentwicklungsprozess zu beobachten ist. Durch den Einfluss der wirtschaftlichen, sozialen und demographischen Krise wurde die Frage über die Nachhaltigkeit der Landschulen aktuell.

In unserer Forschung haben wir uns auf den *ökologische Zugang in der Bildung* gestützt. Die philosophisch-methodologische Grundlage unseres Experiments können wir in mehrere Punkte einteilen, bei denen als Grundlage drei Auffassungen über die Landschulen liegen: 1) Landschulen sind fähig zu bestehen, können sich selbst entwickeln, selbst organisieren und sind selbst auswertende Bildungssysteme; 2) Landschule als eine Organisation des Wissens, die lernt, um sich zu ändern und sich weiter zu entwickeln; 3) Landschule als ein humanes und zielorientiertes Umfeld für das lebenslange Lernen und für die nachhaltige Entwicklung einer Kommune.

Das Ziel dieser Studie: die Auswertung der Veränderlichkeit im Bildungsumfeld der Landschulen aus verschiedenen Gesichtspunkten im Zeitraum der Schuljahre 2008/2009 bis 2010/2011. Als Experiment wurde die Auswertungsmethodik des Bildungsumfeldes verwendet, die von den Landschulen ausgearbeitet wurde. *Forschungsbasis*: 31 Landschulen *Forschungsmethoden*: 1) die interne Expertise (Methode der Datengewinnung) des Bildungsumfeldes der Landschulen; die Experten haben einzelne Merkmale des Bildungsumfeldes in den Landschulen als Indikatoren verwendet und auf der dichotomischen Skala gearbeitet, nämlich, wenn das Merkmal einer Schule im Experiment zu verzeichnen war und der Experte konnte mit „Ja" beantworten, wurde Punkt 1 gesetzt; wenn das Merkmal nicht zu verzeichnen war und die Antwort lautete „Nein", hat der Experte auf dem Expertenarbeitsblatt beim entsprechenden Indikator Punkt 0 gesetzt. Das Bildungsumfeld der Landschulen wurde sowohl für das Schuljahr 2008/2009, als auch für das Schuljahr 2010/2011 ausgewertet; 2) der Binominal-Test (Binominal Test) Merkmale für die Feststellung des Koeffizienten; Zeichentest (Sign Test) und MacNemar's Test für die Feststellung der Differenzen und die Auswertung der Veränderlichkeit im Bildungsumfeld der Landschulen (Datenverarbeitungsmethoden mit Hilfe des SPSS 17.0 Computerprogramms).

Forschungsergebnisse: Nach der primären Datenverarbeitung, der Analyse sowie Auswertung der gewonnenen Resultate, konnten wir feststellen, dass die Veränderlichkeit im Bildungsumfeld der Landschulen in Lettland in mehrere Ebenen verläuft.

Es wächst die Zahl der Schulen, die 1) zu eigenständig entwickelnden und selbst auswertenden Systemen des Bildungsumfeldes werden, die ihr Bestehen heutzutage und die Nachhaltigkeit in der Zukunft zu sichern versuchen; 2) in der Wechselwirkung mit dem Umfeld lernen, neue Informationen zu gewinnen, ihre eigene Erfahrung und die Erfahrung anderer Schulen, die gebotenen Möglichkeiten der Umgebung und der Bestehensgefahr zu analysieren und auszuwerten, um sich weiter zu entwickeln und sich zu ändern; 3) in denen sich die Struktur des Bildungsumfeldes ändert und die selbst die untere Struktur der komplizierten Struktur des Bildungsumfeldes auf dem Land sind; 4) die zu multifunktionalen Bildungszentren der Kommune werden; 5) die ihr Zielpublikum erweitern; 6) die ihr Angebot bezüglich des Bildungsprogrammes vergrössern; 7) deren Tätigkeit auf den humanen Zugang zur Bildung ausgerichtet ist, einschliesslich in der pädagogischen Tätigkeit, indem für die Schüler ein schülerfreundliches und ihre Entwicklung förderndes Bildungsumfeld geschaffen wird. Nach der sekundären Datenverarbeitung, der Analyse sowie der Auswertung der Ergebnisse haben wir festgestellt, dass es wesentliche Unterschiede in der Expertenauswertung zwischen dem Schuljahr 2010/2011 und dem Schuljahr 2008/2009 gibt. Die zeugen davon, dass ***im Laufe der drei Jahren im Bildungsumfeld der Landschulen und ihrer Forschungsbasis wesentliche Veränderungen stattgefunden haben.***